

Vision *for the* Future

UNIVERSITY OF ROCHESTER

FLAUM EYE INSTITUTE

2020, VOL. 2 NEWSLETTER

Life's path

Translated from Latin, curriculum vitae means life's path. Curriculum vitae are detailed resumes of nearly every achievement in one's career. In February 2020, Dr. Mina Chung's life path came to an unexpected end. Behind the sadness lies a tapestry of an accomplished and compassionate clinician, scientist, and person who will be forever linked to the Flaum Eye Institute, the world of ophthalmology, and thousands of lives beyond.

Mina Millicent Chung was born in New York City. Her parents moved to Scarsdale where she and her younger brother grew up. As a child, she had a gift for music, performing classical piano. This included training at the internationally renowned Julliard School of Music Pre-College Division.

Although music remained an important part of her life, the lure of the medicine brought her to Yale University in 1986. She spent the next eight years there, earning a Bachelor's degree in biology and completing her medical degree in 1994, graduating cum laude. Undergraduate classmate **Chris Wood, M.D.**, who also became an ophthalmologist, remembers her as being positive and filled with empathy and kindness.

Deciding on the path of ophthalmology, Dr. Chung was accepted into residency at the University of Southern California. After completing a one-year internship in general medicine at Connecticut Greenwich Hospital, she arrived in Los Angeles and met **Steven Feldon, M.D.**, who was involved in resident training and would become a lifelong friend and mentor.



"You could immediately sense her intelligence and dedication to patients," Feldon said. "She was also adventurous. While she was working at L.A. County Hospital, she came upon a patient with a specific genetic eye disease called Duane syndrome. Always curious and interested in her patients, she discovered that this patient with Duane syndrome had relatives throughout Mexico with the same condition. She and a colleague decided to make a study of them. With limited Spanish, they traveled throughout rural Mexico tracking down people, interviewing them and taking blood samples. Her work helped identify the gene that causes Duane syndrome and advanced the diagnosis, study and treatment of the disease."

The path continued when she began her training to become a retina specialist while pursuing her interest in genetic eye disease.

"She was conscientious, incredibly hardworking and determined," said her husband **Eddie Lin, M.D. M.B.A.**, who is a neuroradiologist at the University of Rochester. "She told me one of the reasons why she decided to become a retina surgeon. As a resident, she had traveled to Korea and met a retina specialist who said that retina would be 'too difficult' of a sub-specialty for her and recommended another field. Of course, she accepted the challenge. It was part of her character."

Her decision to become a retina surgeon led her to the University of Iowa, where she entered a two-year fellowship program. There she was instructed by several of the faculty, including **Edwin Stone, M.D., Ph.D.**, an expert in genetics and inherited eye disease who knew that Chung shared a similar interest.

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Mina Chung Professorship Challenge Announced

All gifts – up to \$100,000 – matched between now and December 31, 2020.

(See details on page 5)

DIRECTOR'S MESSAGE

In December of 2019, I was fortunate to be selected as the 4th Chair of the Department of Ophthalmology and the 2nd Director of the Flaum Eye Institute, succeeding Dr. Steven Feldon after 18 years of spectacular growth and advancement. Over the last year, our department has dealt with the uncertainty of a chair search, some faculty have left, we suffered the tragic death of one my dear friends and one of our gifted clinician-scientists, Dr. Mina Chung, we have worked through a pandemic, we have fought to save our staff from furloughs, and we have seen our nation wake to the reality of inequality. These challenges have only reinforced my desire to lead this department. I can say without question that I am thankful that it is me in this position to lead us out of this turmoil and that I have maintained the same optimism for the future of this institution that I had in December.

Growing up in Tacoma, Washington, and attending college at the University of Portland, it seemed unlikely that I would develop a passion for ophthalmology and this University. That changed when I was accepted into medical school at the University of Rochester in 1989. By 1997 I had graduated with an M.D., Ph.D., and by 1998, had completed my internship at Highland Hospital. It was during those nine years that an affinity matured into loyalty and devotion to the University of Rochester and a fondness for the Rochester community and Upstate New York Region. It was off to Los Angeles, where I completed my residency at the Doheny Eye Institute and Los Angeles County Hospital at the University of Southern California Keck School of Medicine. That is where I first met Dr. Feldon (as a professor and one of my mentors) and Dr. Mina Chung (as my chief resident during my senior year of residency).

It is well known that I then went on to perform a medical and surgical retina fellowship in Baltimore at the Wilmer Eye Institute and Johns Hopkins Hospital. What is not known is that while applying to retina fellowship in 2000, I was asked to write an essay on what my future aspirations were. The title of the essay was, "The Kodak Eye Institute." It detailed a plan of partnering with Kodak to bring imaging to the clinical forefront at the University of Rochester and build a top 10 Eye Institute that would also involve incorporating other residency programs such as Buffalo and Syracuse to make one large residency at the University of Rochester that could then serve the entire Upstate New York region. This model would provide a corporate partner, start-up money, a novel clinical niche, and an entire region of patients to care for.

Fortune was on my side. It was during my first year of fellowship in 2001 that Dr. Feldon, then the newly selected chair of the Department of Ophthalmology at the University of Rochester, called. He said that Dr. Chung was coming to start the retina division in 2002 and asked if I would like to join her. In July 2003 I arrived at the Eye Institute and began this journey.

It was not an easy start. We had only had three residents per year, full-time clinical faculty and staff were sparse, and patients were not knocking down our doors. At this time, ophthalmology in Rochester and the region was largely in the hands of private practices.

I started out with 50% of my time as a vitreoretinal surgeon and 50% of my time as a clinician-scientist performing basic science research – but I spent most of my time wondering how we were going to build an Eye Institute without any patients and without any

referrals. It was at this point that I made a conscious decision to do everything in my power to expand the Eye Institute and increase referrals. It started with Mina and I developing retina satellite clinics in Newark, NY, and then Dansville and Warsaw. Those clinics survived for a while and then ended up closing, so I looked to Buffalo and then Corning. Local referral patterns were still entrenched in private practice, but we were starting to increase referrals from outside of Rochester. From Buffalo to Albany, from Toronto to Northern Pennsylvania, the retina service was growing, and that meant the Eye Institute was growing.

Still, the lack of a local referral base bothered me and I wasn't sure what else to do. Then I realized the only way to penetrate the local market was by creating a local reputation. How do you become successful? How do you win the game? You play the game one snap at a time, play the match one point at a time, perform the cataract surgery one step at a time, build an eye institute one patient at a time. Greatness is built on a pyramid of small victories. I continued to practice to the best of my ability, continued to reach out to patients and referring doctors, and over time referral patterns began to change.

The Medical Center now understands this, thanks to Dr. Feldon's great vision, and has supported our acquisition of new practices to help us grow further. Besides our thriving enterprise at the Medical Center, we now have satellites throughout the region. We have subspecialists serving in Geneva NY, Webster NY, Brighton NY, Gates NY, and provide retina services for SUNY Medical University at Buffalo. Finally, we are on the verge of having the patient population needed to catapult us into the upper echelon. Things are only going to grow from here as we add more satellites, more staff, and more faculty.

I hope this story illustrates the root of my deep devotion to the Flaum Eye Institute and the University of Rochester Medical Center. It is with this background that I assume the role of Professor and Chair of the Department of Ophthalmology and Director of the Flaum Eye Institute.

Looking forward to working with and serving all of you for years to come.



Sincerely,

A handwritten signature in black ink, appearing to read "David DiLoreto, Jr.", written in a cursive style.

David DiLoreto, Jr., M.D., Ph.D.

Director, David and Ilene Flaum
Eye Institute
Chair, Department of Ophthalmology
University of Rochester School of
Medicine & Dentistry



(CONTINUED FROM COVER)

"We became close colleagues," Stone said. "Together we wrote a paper about Best disease. Our friendship would continue to deepen over the years"

After completing her fellowship, she returned to USC and accepted the position of Chief Ophthalmology Resident at Los Angeles County Hospital. The chief resident is actually not a trainee. Rather, they receive a faculty appointment at USC's Keck School of Medicine and are responsible for supervising the USC ophthalmology residents at L.A. County. Many graduates of the program describe the chief resident job as one the toughest anywhere.

"It's the safety-net hospital for L.A.," FEI Chair **David DiLoreto, M.D. Ph.D.**, said of the largest single provider of healthcare in Los Angeles County. "I was a resident there in my final year when I met her. Managing the ophthalmology service at County was a massive undertaking and you had little oversight from USC. It took guts, compassion and an unwavering level of attention to detail to run it. She had all these qualities, leading by example to create a higher level of care. She was instrumental in my decision to go into retina."

Normally a one-year job, Dr. Chung did it for two before being offered a position back at USC Keck. During her time at County, she developed a skill for doing pediatric retina surgery. Concurrently, Feldon was being recruited for the ophthalmology chairmanship at the University of Rochester, a position he would accept. She was his first hire.

"Mina was looking for what to do next," Feldon said. "She wanted to be closer to her family in New York, and I needed someone of her caliber to start a surgical retina service. It was a great fit and her department chair at USC was very supportive of her decision to move to Rochester."

She arrived in 2002 and immediately began building a retina service that up until then included one other specialist practicing non-surgical retina. Besides starting an entire clinical division, Feldon also asked her to take charge of the residency program as its director.

Mina Chung, M.D.

"In the beginning, she was it," Feldon said. "She was on call 24/7. Mina was a big part of why we grew so fast. Her dedication to excellence helped change the culture here and she was well respected by faculty and residents alike."

Dr. Chung played a vital role in the decision for future Chair, David DiLoreto, M.D., Ph.D., to return to the University of Rochester. He arrived after completing his fellowship at Johns Hopkins.

"She became a great partner. We were like brother and sister," DiLoreto said. "In the beginning we would share some patients. All of them would comment on how caring and personable she was. Because of her many talents in niche areas of care, including pediatric retina, we drew patients from throughout the region and the world."

Developing this reputation included helping **James Aquavella, M.D.**, build one of the world's largest centers for pediatric artificial corneal transplantation. The sight giving operation for congenitally blind children required the expertise of a gifted pediatric retina surgeon. Families from around the world brought infants and children, hoping that they would see for the first time in their lives. Aquavella described Chung as his right hand in the operating room.

As FEI grew, Dr. Chung maintained an interest in research. Encouraged by colleagues in Rochester and Iowa, she combined her curiosity about inherited retinal disease with Rochester's burgeoning adaptive optics imaging program, led by **David Williams, Ph.D.** With some early data, a record of publications and recommendations, she was chosen by the National Institutes for Health to receive a Research Career Development Award. These prestigious grants are given to clinicians who show promise in basic and translational research. A requirement of the grant is that recipients choose a mentor, usually a fellow clinician-scientist, to guide their work. With DiLoreto to back up the retina service, Feldon arranged it so that Dr. Chung could travel to Iowa one week per month and work with Stone.

"Some of her happiest moments were in Iowa," Lin said. "It was a special place for her and she looked forward to the trips and the interaction with the friends she continued to make there."

"Mina wanted to look at genetic eye disease blending Rochester's expertise in adaptive optics with Iowa's strength in molecular genetics," Stone said. "She became very close with the lab members, staying at the house of the department's **Dr. Steve Russell** and his wife Trudy. To me she became just like the closest of relatives. The personal loss and the loss to science is profound."

Williams agrees about her skill as a researcher, describing the detailed and expansive clinical wisdom she gave that helped guide

(CONTINUED ON PAGE 4)

Rochester's development of tools that allow scientists today to image retinal disease at high resolution in living patients. This contribution not only resulted in numerous publications, but helped provide a foundation for understanding and treating retinal disease.

Dr. Chung would continue research as a primary investigator or co-investigator, helping secure millions in funding for the Eye Institute through government grants, private foundational support and commercial contracts. All the while she would interweave her dedication to patient care and love for teaching – bringing hope to patients through clinical research while involving residents, fellows and young scientists in the search for knowledge and more effective treatments.

A generous mentor, Dr. Chung participated in the training of scores of clinicians and scientists. From the early days at L.A. County, **Sunil Shivaram, M.D.**, referred to her as “our kind and confident platoon leader, always outworking the rest of us and flashing that disarming smile when we needed it most.”

“Mina was an amazing mentor, friend, colleague, and doctor to so many people.” **Ajay Kuriyan, M.D.**, said. Dr. Chung helped him establish at FEI the first Argus2 retinal prosthesis program in all of New York State. “I first met her as a medical student at Rochester and I cherished working closely with her during my time as faculty at the Flaum Eye Institute. She was the embodiment of the University of Rochester's motto ‘*meliora*’, which means ever better.”

As residency director at FEI, she grew the reputation of the program and helped train dozens of ophthalmologists, eventually turning over the reins to **Matthew Gearinger, M.D.**, as her clinical, research and administrative responsibilities grew. This included establishing a retina-vitreous fellowship in 2005 with the help of DiLoreto. Both her residents and fellows said that she was fearless in the operating room – a brilliant surgeon and an incredible person who was always be available for anyone, including medical students, graduate students, staff, and undergraduates interested in advancing their knowledge.

Dr. Chung took a special interest in guiding the careers of women in ophthalmology. This included residents, fellows, junior faculty and staff at the Eye Institute and beyond. In 2006 she joined Women in Retina. The organization is part of the American Retina Society. She would be invited to sit on its board in 2015, being named Vice Chair in 2020.

“I've admired Mina since the day I met her – her thoughtful, intelligent and compassionate care for patients was unparalleled and inspiring,” FEI cornea specialist **Rachel Wozniak, M.D., Ph.D.** said. “She was an important mentor to me and I will always be grateful for her wisdom and advice as a young faculty member. Her spirit and legacy will forever be a source of inspiration to me.”

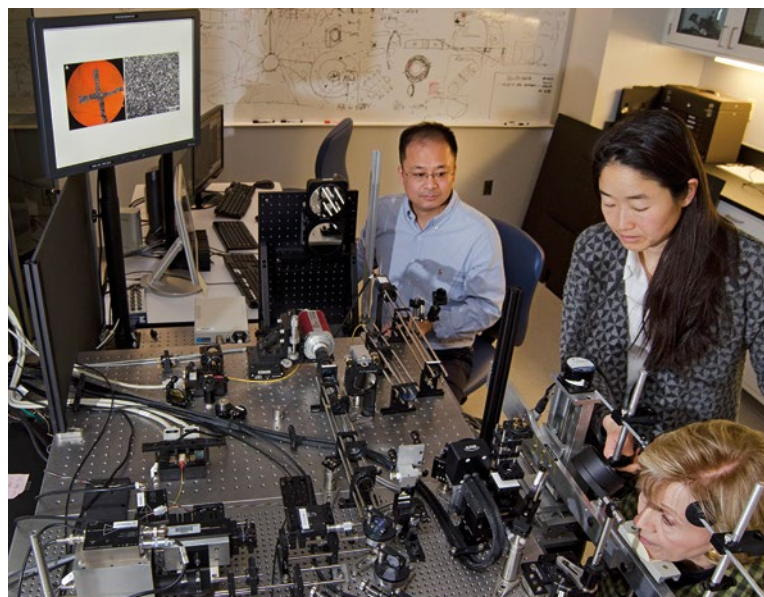
Women in Retina chair emeritus, **Jennifer Lim, M.D.**, remembered Dr. Chung as an accomplished scientist, ophthalmologist and talented musician who was a valued member of the board. Most importantly. She is remembered as a compassionate healer, a sentiment echoed by many – especially patients from whom there has been an outpouring of grief and sympathy at her loss.

Her patients came from throughout the region, with some pediatric patients traveling from as far away as Europe, because of her surgical skills and involvement with genetic eye diseases. Among these

are Jeff Vogt, a Rochester, New York, firefighter who refers to Chung as his guardian angel (see “Fearless”).

The overriding expression from patients, their families, and her colleagues is that the Eye Institute – and the world – suffered a great loss. But as DiLoreto said, “while there is a hole in my heart, I have the solace of knowing that there is so much of Mina living in me and that I will get to share that with others.”

Dr. Chung was an accomplished athlete. She expressed the fearlessness that she showed in the operating room as a skier and marathon runner. Throughout her life she was a passionate musician who made time to entertain family and friends with her music and gracious hospitality. The Flaum Eye Institute is committed to continuing Chung's path through an endowed professorship. Support for this endeavor can be made using the envelope in this issue, by visiting www.chungmemorial.urmc.edu and making a gift online, or contacting Diane Quinlisk at (585) 733-1818.



PERFORMING ADAPTIVE OPTICS IMAGING WITH HONGXIN SONG.



A COMMUNITY EDUCATION SESSION..

I met Mina right after she arrived in Rochester. We became fast friends. We would go out to dinner, to events, talk about endless topics including cooking, wine tasting and dining out... a favorite for both of us! She tried to convince me to join her when she took up running. Our homes were a few miles apart and Mina said there was a great vegetable stand we could run to and buy fresh veggies. I confessed to her that I was not a runner. She smiled and kept running, including marathons!

As I became her financial advisor, our relationship grew professional. Together we developed strategies and investments that mirrored her passions, including travel. It was fun to hear about her many trips and adventures, including to Italy for her marriage to her husband, Dr. Eddie Lin.

Eventually, Mina became my retina specialist. I was already familiar with her bright smile and infectious laugh, which were added benefits of being her patient. No matter what the circumstances, she brought laughter, kindness, confidence and calmness to me and every other patient.

Over the years, Mina occasionally needed to cancel her financial planning meetings due to clinical emergencies. Each time, I thought: Dr. Chung is saving another person's vision and how grateful they will be that day.

Mina asked me if I would consider joining the Eye Institute board 10 years ago. She noted I was active in giving back to our community and, as a patient, brought an added dimension to the role. This is where I learned so much about her groundbreaking research.



L TO R: MINA CHUNG, LINDA HANNA, SUSAN ACKER.

The University recently created a framework for the Dr. Mina Chung Endowed Professorship. This can only happen with funding. Every dollar will help to turn this vision into a reality. Today I ask you to join me sending a check in the envelope enclosed or by visiting www.chungmemorial.urmc.edu

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Brilliance is defined as intense brightness of light or exceptional intelligence or talent. This word best describes Dr. Mina Chung for me. While I will forever miss the sound of her laugh and the warmth of her hug, her brilliance will live on in my heart and can continue to live on in our community forever, with your help.

Whether you are a grateful patient, friend or colleague, we need your support for her brilliance to continue to shine.

— Susan Acker

CHALLENGE FUND ESTABLISHED

We are pleased to announce that a small group of close friends has established a challenge fund for the **Dr. Mina M. Chung Professorship**.

This group has generously committed to **match contributions up to \$100,000** that are made by December 31, 2020.

"We miss Mina terribly and want to do what we can to ensure that she is honored in this way, because it would be so meaningful to her and could allow other physicians to follow in her footsteps. To us, Mina was a dear friend, but she also touched the lives of countless others as a top physician in her field. She was so generous with her time and talents. Many who knew Mina as friends, as colleagues or as patients want to help and to honor her memory but may not know the best place or time to start. That is why we are pledging \$100,000 to match donations made by the end of 2020."

*Erin Casey & Dr. Jonah Marshall
Dr. Melissa & Jim Covington
Laura & Bob Mullin*

FEARLESS

"I was a paratrooper in the army," Jeff Vogt said. "I made plenty of night jumps, so I know what it's like to be scared. And I was really scared."



Vogt is a father of three, husband and City of Rochester firefighter who works in one of the most challenging neighborhoods. In 2013, he experienced a visual phenomenon in his right eye which he described as "hundreds of grains of pepper." He received treatment for a damaged retina that included laser therapy to prevent a tear from progressing and a scleral buckle: a surgically implanted device that squeezes the eye to relieve traction on the retina and allows it to heal. The retina is like the sensor in a camera. It converts the light that comes through the eye into information that the brain recognizes as images. Without it, there is blindness.

While he was convalescing, he became increasingly worried about his vision. His father lost sight in one eye due to a retinal detachment

(CONTINUED ON PAGE 6)

The David and Ilene Flaum Eye Institute is most grateful to its donors for their generous gifts and ongoing support. We are especially appreciative to the friends, patients, alumni and faculty who contributed to our Annual Fund. The Annual Fund is an essential source of support that helps us to continue our groundbreaking work in vision care and research. This year, your donations had a direct impact on our mission, helping us recruit new faculty and purchase new equipment for our clinic and research laboratories. The following donors have contributed in meaningful ways to FEI between Sept. 1, 2019 and May 1, 2020.

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FEARLESS (CONTINUED FROM PAGE 5)

and he felt he might be following the same path. By chance, while attending a birthday party, he met a childhood friend, Kari Steinmetz, who was working at Flaum Eye Institute. She urged him to seek a second opinion if he was worried.

He took the advice and was given an appointment with retina specialist **Mina Chung, M.D.** Little did he know that the both of them would develop a strong bond, with Vogt ending up referring to Chung as "my guardian angel."

"She walked into the room with a big smile and a 'hello' and shook my hand," Vogt said. "She was very attentive and thorough. What I was really impressed with was the way she handled my questions; I had a lot of them. She sat and listened and looked me right in the eyes. I was very worried about my vision and you could tell that she really cared. I trusted her emphatically."

Chung saw that the peripheral of Vogt's right retina was detached. She immediately had him prepped for surgery and taken to the operating room. With detachments, time means vision; the sooner treatment is initiated, the better the outcome. She performed a procedure to reattach the retina, including inserting a gas bubble in the back part of Vogt's eye to hold the retina in place. The next day all appeared normal. Vogt was instructed to keep his head down, so the bubble wouldn't move, and to come back in a week. He would have to miss work for a month and avoid strenuous activity.

"Missing work is a tough thing for me," Vogt said. "I love my job and my team at the fire department. At the time this first happened, I thought that I'd have this one surgery and be able to go back to normal. But it didn't work out this way. I became Dr. Chung's problem child."

During the next 28 months, Vogt's right retina would detach

four more times. He would work sporadically, but life would be difficult. Besides fluctuating vision in his right eye, he would experience episodes of pain. He counted on his family, co-workers and Chung to get him through it.

"I don't know where I would be without them," Vogt said. "If I can't work, I can't feed my family. I'm so grateful to my wife, kids and neighbors for picking me up and dropping me off at appointments and keeping my spirits up. And then there was Dr. Chung, always greeting me with that big smile, keeping me calm and reassuring me."

Thanks to an implantable lens used to replace a cataract that was removed during one of the retina surgeries, the vision in his right eye improved to 20/50. It also appeared that his right retina was stabilizing. Then the unimaginable happened. Holes and tears began appearing in his left retina. The following months would prove even more challenging, involving a dozen procedures and testing all of Chung's skill to save vision in that eye.

To prevent the tears in Vogt's left retina from getting bigger, barrier laser procedures were performed. This creates walls of scar tissue, isolating the holes from the intact tissue. Unfortunately, the laser was not enough and Vogt suffered a retinal detachment. His left eye would prove even more difficult to treat than the right, requiring 10 reattachment surgeries over a span of two years. This difficulty was due to Vogt developing proliferative vitreoretinopathy (PVR). This occurs in about 8 to 10 percent of patients who undergo retinal detachment surgery. PVR results in "scar tissue" or membranes growing on, in and under the retina. These pull on the retina as they get bigger causing subsequent detachments. Fortunately the vision in his right eye had improved to 20/30. Vogt likened

(CONTINUED ON PAGE 8)

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Margaret Kittelberger and
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*We offer special thanks to:
Bausch+Lomb, Research
to Prevent Blindness,
Glover-Crask Charitable
Trust, David & Ilene Flaum,
James & Catherine Aquavella,
and Lynn & Walter Lutz
for their sustaining support.*

FEARLESS (CONTINUED FROM PAGE 6)

this period in his life as if going through a dark tunnel.

"There are times when you think you're going to lose your mind," Vogt said. "But throughout it, Dr. Chung remained calm and reassuring. At one point I asked if she was ready to throw in the towel on me. But she said: 'Don't worry, we're not even close to that. We'll take this until it's impossible to go any further.' How could I let her down? I'd be blind without her."

With patience and skill, Chung used multiple approaches to save the vision in Vogt's left eye, performing the last procedure on it in July 2019. There were many frightening moments in-between. In the meantime, Vogt's vision in his right eye improved. By September, 2019, it was 20/20 and he was able to return to work. When he learned of Chung's accident this February, he was in shock.

"Why did this happen to somebody like her," he said. "I was in disbelief. She was just so caring and talented and wonderful. I remember one time coming to an appointment and asking her if she knew how much

she impacted people – I always saw the kids that she cared for sitting with their parents in the waiting room. She gave me that thoughtful look of hers and said 'thank you'. She was one of a kind."

"If I could spend a minute with Dr. Chung, I would thank her for all she has done for me and my family," Vogt said. "When my dad lost sight in one eye, he just stopped living. I don't want to go down that road. To me vision is the most important sense. Mine's not perfect, but I can still enjoy life. And she gave me that gift."

Although Vogt lost his favorite doctor, he remains hopeful. He continues to work as a firefighter and has trust and confidence in the Eye Institute to help him maintain his vision and livelihood. He also encourages people – who may not know Dr. Chung as well as he did – to consider supporting efforts to memorialize her legacy through philanthropy.

"Nobody knows when you need this," Vogt said. "This place is a valuable community resource. I'm 100% sure that anything done in her name will be a complete success."

In our next edition we remember David Flaum, who recently passed away. A generous philanthropist, advocate and advisor, his visionary support of the Eye Institute helped lay the foundation for our growing missions of exceptional patient care, research, education and community outreach. Our hearts are with his family and friends in mourning his loss.



FACULTY PRACTICE

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Christian Klein, M.D.

Cornea and External Disease

James V. Aquavella, M.D.
Naveen Mysore, M.D., Ph.D.
Ronald Plotnik, M.D., M.B.A.
Rachel Wozniak, M.D., Ph.D.

Glaucoma/Anterior Segment

Regina Smolyak, M.D.

Neuro-Ophthalmology and Orbit

Steven Feldon, M.D., M.B.A.
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Oculofacial Plastics

Mithra Gonzalez, M.D.

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Uveitis

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New link to eye health added to FEI's armamentarium

For patients with keratoconus, life is a blur. This progressive disease of the cornea affects roughly 160,000 people nationwide, with more diagnosed every year. No one knows for sure what causes keratoconus; many think it may be a combination of genetic, environmental and hormonal factors. There is a 15% likelihood that a person with the disease will pass it on to their offspring.

Keratoconus is characterized by a thinning of the cornea – the clear window of the eye that is responsible for focusing a pinpoint beam of light onto the back of the eye so that we receive a sharp image. As the cornea thins, it steepens or warps, changing from a rounded shape to an irregular, conical one.



DR. SCOTT MACRAE

“You can think of it as a wear spot in a bike tire that bulges,” FEI cornea specialist **Scott MacRae, M.D.**, said.

This shape shift causes the cornea to focus light onto many points in the back of the eye instead of one crisp image. The result is blurring or multiple images, and it may also cause sensitivity to light and eye strain. The distortions in vision can drastically affect a person’s ability to perform everyday tasks, such as reading or driving, rendering some people functionally blind.

“Keratoconus is routinely diagnosed in adolescence and beyond,” MacRae said. “The later in life the onset, the less aggressive it tends to be. This is because our corneas, like our bodies, stiffen with age. For those who do have the disease, it can present with a rapid increase in astigmatism.”

The condition is usually found during routine eye exams. Patients first notice changes to their vision. Eye doctors then discover large amounts astigmatism and subsequently diagnose the underlying cause. Routine treatment for keratoconus may be as simple as prescription glasses or soft contact lenses to correct the astigmatism. If the disease is more aggressive, specialized rigid or semi-rigid contact lenses may be prescribed.

If the keratoconus is more advanced, a person’s vision may deteriorate to a point where they require corneal transplantation. This procedure is highly successful, but it’s more involved, costly, and recovery time is longer, so it’s preferable to diagnose and treat keratoconus before it progresses.

FEI recently deployed a new technology that may altogether eliminate the need for transplantation in most cases of severe keratoconus. The solution was invented in Europe 15 years ago and approved for use in the U.S. within the last three years. Called crosslinking, the procedure strengthens a patient’s weakened corneas by linking the cornea’s naturally occurring collagen. This stiffens the cornea, “freezing” its shape and preventing further progression.

“The cornea is living tissue which is super smooth and clear. It is responsible for two thirds of the focusing of the eye and so it’s critical for good vision,” MacRae said. “It is packed tightly with collagen layers that are laid down in a crisscrossing lamination similar to plywood. This gives it very compact strength. Keratoconus causes the collagen layers to weaken and slide so they lose their structural integrity. This results in the cornea losing its spherical shape, causing distortion and vision loss.”

To link the collagen layers requires saturating the cornea with a very dilute solution of the vitamin riboflavin (vitamin B2) and then exposing it to a specific wavelength of low energy ultraviolet light. This bonds the collagen layers and preserves their lamination. It involves using a specialized form of riboflavin and a very specific type of ultraviolet light developed by Avedro. It is the only currently FDA approved method of crosslinking.

During the procedure, the patient is first given anesthetic drops to numb the cornea and a sedative if desired. Then, the thin superficial layer of the cornea – called the corneal epithelium – is gently removed. A specially prepared solution of riboflavin is subsequently applied at intervals until it saturates the cornea. The cornea is finally exposed to the specific wavelength of UV light for about 30 minutes (the amount of UV light is about the same as one would experience if out fishing for a day). The UV light excites the riboflavin and produces an excited oxygen molecule (a singlet state) which reorganizes and stiffens the collagen molecules. The patient is then fitted with a bandage soft contact lens and sent home. Because removing the epithelium can cause some irritation for three or four days, the patient is prescribed some pain medication if discomfort occurs.

“The in-office procedure takes about one-and-a-half hours to complete,” MacRae said. “After the treatment, the vision may drop for several weeks and then slowly recover during the next couple of months. Most patients, however, are able to return to normal activities within a week after crosslinking.”

MacRae says that crosslinking is successful in stopping the progression of keratoconus in about 90% of individuals. In 15 years of patient data, their corneal shape remained stable, with only about 5% to 10% of them needing a retreatment. Complications from the procedure are very uncommon but could include infection, slow healing or corneal scarring.

Because of crosslinking’s effectiveness, MacRae says that early diagnosis of keratoconus is key to success. This is made possible by new instrumentation that can pick up telltale signs of the disease much sooner than could be achieved several years ago.

“The quicker we can determine that someone is rapidly progressing, the better we can stop it,” MacRae continued. “The procedure doesn’t reverse changes that have already occurred in the shape of the cornea. Catching severe cases earlier means that there will be less effect on vision. In most instances, patients can use glasses or contact lenses to achieve very functional vision after the surgery. It’s a game changer for them.”

Huxlin lab demonstrates that early intervention can save sight in strokes

Vision loss is a common result when a person suffers a stroke. Doctors regretfully tell many of their patients that there's not much to be done to restore lost sight. FEI's James V. Aquavella Professor of Ophthalmology **Krystel Huxlin, Ph.D.**, and colleagues in her laboratory believe that fast action may make it possible for patients to regain precious vision.

Results of a study reported in the journal of neurology, *Brain*, show that survivors of occipital strokes – strokes that occur in the occipital lobe of the brain and affect the ability to see – may retain some visual capabilities immediately after the stroke, but these abilities diminish and eventually disappear permanently after approximately six months. By capitalizing on this initial preserved vision, early vision training interventions can help stroke patients recover more of their vision loss than if training is delayed.

The Rochester research team – including **Elizabeth Saionz**, a PhD candidate in Huxlin's lab; **Duje Tadin, Ph.D.**, professor and chair of the Department of Brain and Cognitive Sciences; and **Michael Melnick, Ph.D.**, a postdoctoral associate in Tadin and Huxlin's labs – also discovered that early intervention in the form of visual training appears to stop the gradual loss of visual processing that stroke victims may experience.

Vision stroke rehabilitation remains a developing field, and previous studies and trials of experimental therapies have focused on patients with chronic vision loss—that is, patients who are more than six months post-stroke.

“Right now, the ‘standard of care’ for vision stroke patients is that they don't receive any targeted therapy to restore vision,” Saionz says. “They might be offered therapy to help maximize use of their remaining vision or learn how to navigate the world with their new limited vision, but there are no treatments offered that can give them back any of the vision that they lost.”

The new study compared chronic patients – those who were more than six-months post-stroke – with early subacute patients (those who were physically able complete training) who started their therapy within the first three months after their stroke.

The researchers trained both groups of stroke patients using a computer-based device Huxlin developed. The training is a form of physical therapy for the visual system and involves a set of exercises that stimulates undamaged portions of the visual cortical system to use visual information. With repeated stimulation, these undamaged parts of the brain can learn to more effectively process visual information that is not filtered by the damaged primary visual cortex, partially restoring conscious visual sensations.

The researchers discovered that the subacute patients who underwent such vision training recovered global motion discrimination – the ability to determine the direction of motion in a noisy environment—as well as luminance detection – the ability to detect a spot of light – faster and much more efficiently than the chronic patients.

Overall, the group's findings suggest that individuals may maintain visual abilities early after a stroke, indicating they have preserved some sensory information processing that may temporarily circumvent the permanently damaged regions of the brain. Early visual training may therefore be critical both to prevent vision from degrading and to enhance restoration of any preserved perceptual abilities.

“For the first time, we can now conclusively say that just as for sensorimotor stroke, ‘time is vision’ after an occipital stroke,” Huxlin says.



KRYSTEL HUXLIN, PH.D..

New hope for damaged corneal nerves?

The human cornea has a higher concentration of nerves than almost any other place in the body. Not only do these nerves sense pain and tell us when to protect our eyes by closing them, they regulate moisture that keeps the cornea healthy and helps protect the surface of the eye. Disease, infection and ocular surgery all damage corneal nerves and can result in consequences ranging in severity from dry-eye to blindness. These complications are primarily caused by a rapid formation of scar tissue – called fibrosis – which then blocks regeneration of nerve fibers. This scarring process begins within hours of injury, and once fibrosis has occurred, there is no known therapy to reverse it and promote nerve regeneration.

James Aquavella Professor of Ophthalmology and FEI Associate Chair for Research, **Krystel Huxlin, Ph.D.**, may have a new solution to this problem, and the National Eye Institute is interested. It recently awarded Huxlin and her collaborators at the University of Rochester Medical Center – **Drs. Keith Nehrke and Kye-Im Jeon** – a \$1.6 million grant to investigate it. Huxlin's laboratory had previously shown that a family of compounds called thiazolidinediones (TZDs) can prevent the formation of scar tissue when administered early after corneal injury. However, most

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Common acid reflux medicines could provide a new treatment for eye disease

Thyroid eye disease (TED) occurs in about half the persons who develop the autoimmune condition Graves' disease. Graves' is the most common cause of hyperthyroidism (the thyroid gland producing too much thyroid hormone). Graves' disease affects approximately 1 in 200 people in the U.S. – usually between the ages of 30 and 50 – and is eight times more likely to affect women. Due to some common proteins expressed behind the eye and the thyroid, the autoimmune attack often targets eye muscles and connective tissue. TED patients form enlarged fatty deposits and/or excessive scar tissue in the orbital space behind the eyes. Tissue enlargement can cause the eyes to bulge out resulting in double vision,

patients present to their doctors after fibrosis has already occurred. It is this situation that Huxlin's newly funded research aims to cure.

Her team discovered that TZDs can reverse scarring after it has developed, with a parallel increase in nerve regeneration. The project then shifted focus during a conversation with mitochondrial expert Nehrke, who pointed out emerging evidence that TZDs can regulate cellular metabolism through targeting the Mitochondrial Pyruvate Carrier (MPC), a membrane transport protein that controls entry of particular molecules into the mitochondria. Mitochondria are small organelles that act as a central hub for energy production in the cell. In collaboration with Nehrke, Huxlin's team showed that inhibiting the MPC in neurons led to a phenomenon termed "metabolic plasticity", which promoted nerve regeneration. Surprisingly, MPC inhibition also appeared to interrupt fibrosis by causing myofibroblasts, the cells that cause scarring, to revert to a quiescent, non-fibrotic state. MPC inhibition appears to have two independent effects, both of which allow neurons to regrow in the corneal wound environment. The new NEI grant will refocus efforts on studying metabolic reprogramming as a therapeutic strategy and testing whether next-generation drugs that target the MPC are dramatically more effective at promoting wound healing and long-term corneal health than current strategies.

disfigurement, and dry eye (because the lids don't close properly). In the most severe cases, the unwanted tissue can compress the optic nerve causing blindness. Besides surgery and corticosteroid treatment to reduce the autoimmune processes, there are currently limited methods to treat the formation of fat and scar tissue.

FEI Assistant Professor of Ophthalmology, **Collynn Woeller, Ph.D.**, and his team of FEI researchers, recently reported in *PLOS ONE* promising results that may help limit or prevent the impact of TED by using commonly prescribed medicines. In a set of experiments, the scientists cultured cells from tissue previously taken from TED patients. These cells were then exposed to a pro-scarring molecule associated with TED called transforming growth factor beta (TGF- β). TGF- β causes cells to turn into scar-forming cells called myofibroblasts. In some of the experimental samples

cultured, proton pump inhibitors (PPIs) were introduced along with TGF- β . PPIs are drugs commonly used to treat conditions like acid reflux or stomach ulcers. When these PPIs were exposed to the TED cells, there was a significant reduction in the number of myofibroblasts that developed.

Woeller believes that the PPIs interfere with an important biochemical signaling pathway associated with TED. The thought is that the actions of TGF- β may be blocked by the PPIs by binding to a specific receptor inside the cells. Activation of the receptor by PPIs prevents TGF- β from "turning on" the process of myofibroblast formation. PPIs are a class of affordable drugs that are usually well tolerated by patients. While these results are encouraging, further research is needed to provide enough insight as to how and when to use PPIs to lessen the severity of TED, or if PPIs could be used in at risk Graves' patients to prevent TED from happening in the first place.

Singh receives promotion

FEI congratulates **Ruchira Singh, Ph.D.**, who was recently promoted to Associate Professor of Ophthalmology with tenure. Singh has been an active and enthusiastic member of FEI and the University.

"It is remarkable that she was able to receive tenure within five years of joining FEI," said FEI Director of Research and James Aquavella Distinguished Professor of Ophthalmology, **Krystal Huxlin, Ph.D.** "The award of tenure is recognition from the University that she has compiled a notable record of scholarly achievement and is distinguished as a leader in her field. Tenure is also a statement that Singh is a demonstrably accomplished teacher at the graduate and undergraduate levels and represents the strongest appointment the University can make."

Singh is extensively involved in training undergraduate and graduate students as well as postdoctoral research scholars and staff scientists in her laboratory. She also teaches courses in genetics, neuroscience and biology at the undergraduate and graduate levels. Singh serves regularly on student committees and has been involved in mentoring first-year students of the neuroscience graduate program.

Singh's laboratory focuses on finding treatments, and possibly cures, for specific retinal and neurodegenerative diseases. Her team accomplishes this by using patient-derived human induced pluripotent stem cells (hiPSCs) to study and treat the molecular mechanism of specific retinal and neurological diseases – including age related macular degeneration. She has an impressive record of publications and has received extensive funding from the National Institutes of Health and private foundations.

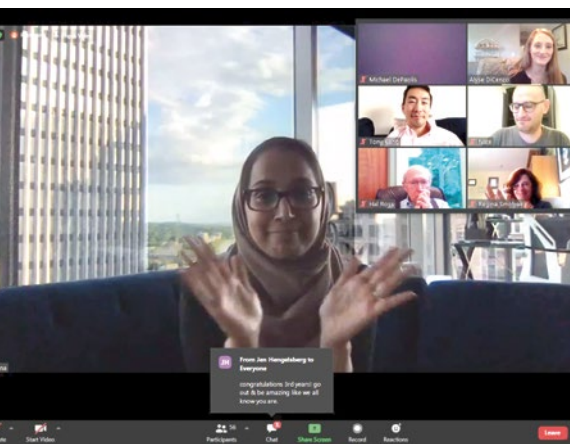
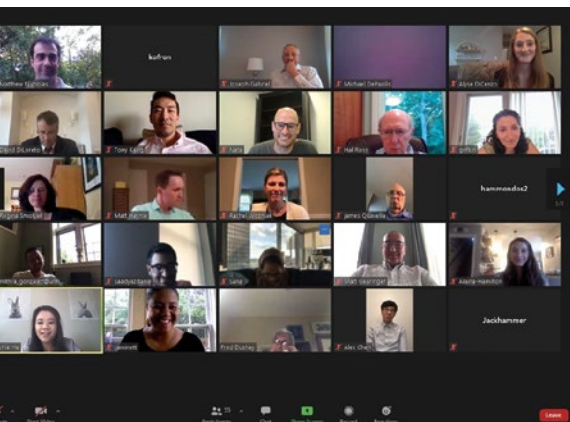
Singh joined the Eye Institute in 2014. She received her doctorate in physiology from Kansas State University and completed postdoctoral training in pharmacology at Yale School of Medicine, with additional stem cell research training at the University of Wisconsin-Madison.



The 2020 resident graduation may be the most memorable in FEI history

Usually celebrated by faculty, families of the graduates, friends, and Eye Institute staff, COVID restrictions made a traditional dinner program impossible. Also put on hold was the recently established research day, where residents and faculty present their scientific endeavors for the recent academic year.

Instead, everyone collected on Zoom for a virtual recognition of the



senior residents. It was as spirited and meaningful as ever. Resident Director **Benjamin Hammond, M.D.**, emceed, recognizing the seniors for their accomplishments and sending them on to the next phases of their careers.

The graduates, in turn, thanked and recognized many of the people who helped them through residency. They also unveiled two new teaching awards, each acknowledging a particular instructor's positive role on the program. The **Mina Chung Award**, given to a faculty member who epitomizes the personal excellence and

guidance exemplified by Chung, was awarded to Retina Fellow and instructor, **Sana Idrees, M.D.** The **Frederick Dushay Teaching Award**, named for long-time resident clinic preceptor, **Frederick Dushay, M.D.**, was given to **Matthew Gearing, M.D.**

During the ceremony, fond memories were shared through text messaging as the graduates spoke about their experience at the

University of Rochester.

"I still remember our welcome breakfast as if it were yesterday," **Nate Simmons, M.D.**, said. "There have been innumerable changes throughout my residency, but the single consistency has been the wonderful team of co-workers. During my interview, Dr. Feldon and Dr. Hammond sold me on the family atmosphere and supportive culture of Flaum, and they could not have been more accurate. I am forever grateful to have had the opportunity to learn and grow and want to thank everyone for their teaching, patience, mentorship, dedication, and laughter."

"I am thankful to everyone who helped me on this journey to becoming an ophthalmologist," said **Gabriella Rifkin, M.D.** "Without you I would not be where I am now. I am grateful to everyone who took the time and energy to support me, teach me, and guide me through my three years here. Closing this chapter is bittersweet and I will miss all of you."

"Even as a medical student coming in for an away rotation, I was quickly able to see how close-knit the family at Flaum Eye Institute was," **Alyse Richard, M.D.**, said. "It was a major factor in solidifying my choice to come here for residency. This place will always hold a special space in my heart. I will miss all of you and am sad to be leaving such an intelligent, resilient and wonderful group of people."

Although the camaraderie of the traditional celebration was missed, we wish nothing but the best for our graduates as they move on to the next chapters in their careers:

Matthew Nicholas, M.D., Ph.D., begins a medical retina fellowship at the Cleveland Clinic Cole Eye Institute.

Alyse Richard, M.D., also begins a medical retinal fellowship. Hers will be in Boston at the New England Eye Center.

Gabriella Rifkin, M.D., is entering private practice. She joins the medical staff of South Florida Laser Eye Center, located in Plantation, FL.

Nate Simmons, M.D., is staying in Western New York. He is also entering private at Southtowns Eye Center located in Orchard Park.

Class of 2022 arrives in Rochester to begin transitional year

When a medical student decides to pursue a career in ophthalmology, they do not immediately begin their residency at the program into which they have been accepted. Instead, they spend a year studying internal medicine. This is because many diseases of the eye have their genesis in systemic conditions – like diabetes, high blood-pressure or rheumatoid arthritis – that a primary care physician might treat.

Until recently, it was up to newly accepted ophthalmology residents to find their own place to do their internal medicine rotations. Following a growing trend, FEI became a fully integrated program starting this academic year. Now they will spend their entire four years at the University of Rochester. Their intern-year curriculum is controlled and designed by FEI. Other services at URM will provide the educational experiences determined most helpful to prepare residents in their transition to ophthalmology. These rotations will include internal medicine (inpatient, outpatient, and subspecialty), emergency medicine, neurology, and other subspecialties. This first year experience will also include a

three month ophthalmology rotation.

We are excited to welcome this inaugural group to Rochester as they begin their transitional internships.

Derick Ansah, M.D., received a bachelor of science from the University of Maryland. He completed his medical degree at Johns Hopkins University School of Medicine.

Phillip Braun, M.D., completed a baccalaureate program in the classics at Princeton University and attended medical school at Yale University.

Eric Chen, M.D., received his bachelor's and master's degrees in biochemistry and molecular biology prior to completing this medical training at Case Western Reserve University.

Daniel Savage, M.D., Ph.D., earned a bachelor's degree in optics from the University of Rochester where he then completed the M.D., Ph.D, program, receiving his medical degree and a doctorate in optical physics.

Welcoming the class of 2023 residents was COVID-affected, too. The traditional breakfast celebrated in-person was changed to an online event. Nonetheless excitement around FEI was evident as four new ophthalmologists-in-training arrived on campus to begin their journeys.

As is tradition, these bright young individuals received the American Academy of Ophthalmology's 13-volume Basic Clinical Science Course. Presented by the FEI Alumni Council, the books are foundational to resident education. The cost of the series is underwritten by the FEI Alumni Endowment Fund.

After completing their first year of an internal medicine rotation, FEI welcomes four talented doctors:



Kyle Green, M.D., received his undergraduate degree in neurobiology from Harvard University, where he developed an early interest in the neurologic pathways from the retina to the brain.

His interest in ophthalmology grew while he attended medical school at the University of Southern California, where he gained clinical experience and also dedicated a year towards retinal imaging research at USC's Roski Eye

Institute. After matching to FEI for his ophthalmology residency, Green spent his transitional year in internal medicine at Kaweah Delta Medical Center in Visalia, CA. He hopes to take his strong interest in research into academic medicine. Among his interests are American history and viticulture.

Randy Igbinoba, M.D., M.P.H., M.B.A.,



earned his Bachelor of Science Degree in Biochemistry and Biophysics at the University of Houston. He went on to McGovern Medical School at the University of Texas, where he also completed master's

degrees in public health and business administration. Growing up as a competitive basketball player, a retinal detachment suffered during a game sparked his interest in eye care. Besides basketball, he counts computer programming and yoga among his interests. He completed his first year internship in internal medicine at Baylor before moving to Rochester.

Batavia native **Russell "RJ" Marchese, M.D.**, received his Bachelor's in psychology at Georgetown University where he continued studies in medical school. During one of his clinical rotations at Georgetown, he discovered that ophthalmology presented



the perfect balance of patient-centered clinical and surgical care. After being accepted into residency at FEI, he returned to Rochester to complete his transitional year at the University of Rochester Medical Center. Marchese spent time volunteering in outreach clinics and a recreational music program for children while he was in Washington, D.C.



Yiyun Zhou, M.D., Ph.D., M.B.A., was born and raised in Shanghai, China. Graduating with a degree in nutrition, she turned down the offer of a promising career path to travel to the U.S. to pursue her dream of

becoming a doctor. At SUNY Buffalo, she completed an M.D., M.B.A. and Doctorate in Biochemistry, graduating with honors. She has combined a keen interest in research with a focus for outreach and public health to better understand how to serve the eye care needs of disparate populations. Remaining at SUNY Buffalo to complete her transitional year in internal medicine, she looks forward to pursuing her dream of becoming an ophthalmologist at FEI.

The Flaum Eye Institute Visiting Professor Series

The Flaum Eye Institute Visiting Professor enters a new chapter in bringing the most accomplished, nationally recognized eye care professionals to the University of Rochester for continuing medical education. Beginning in the 2021 academic year, the events will be moved to Friday afternoons and, until further notice, all sessions will be offered via the Zoom Meeting streaming media platform.

Agenda for Visiting Professor Sessions – now on Friday afternoons

2:00 p.m. – Introductions & Discussion of Patients (Zoom Meeting)

3:30 p.m. – Didactic Lecture (Zoom Meeting)

4:30 p.m. – Questions (Zoom Meeting)

For information on how to receive credit, call (585) 275-7666. If you have questions about the series, please call Residency Coordinator Patty DeBurro at (585) 273-3954.

GRAND ROUNDS

October 16, 2020

Alex Levin, M.D.
Adeline Lutz and Dr. Steven ST Ching,
Distinguished Professor in Ophthalmology,
University of Rochester Medical Center
Ocular Genetics

November 20, 2020

John Berdahl, M.D.
Vance Thompson Vision,
Associate Professor of Ophthalmology,
Sanford School of Medicine
Cataract – Anterior Segment

December 18, 2020

Judy Kim, M.D.
Professor, Ophthalmology and Visual Sciences
Vitreoretinal Diseases and Surgery,
Medical College of Wisconsin
Retina

February 19, 2021

Laura Enyedi, M.D.
Associate Professor of Ophthalmology,
Duke University
Pediatric Ophthalmology

March 26-27, 2021

Rochester Ophthalmology Conference

April 16, 2021

Peter Setabutr, M.D.
Associate Professor of Ophthalmology, Director,
Oculoplastic & Reconstructive Surgery Service,
University of Illinois, Chicago, Millennium
Park Eye Center
Oculoplastics

June 18, 2021

Carla Siegfried, M.D., Ph.D.
Jacquelyn E. and Allan E. Kolker, M.D.,
Distinguished Professor of Ophthalmology and
Visual Sciences,
Washington University School of Medicine,
St. Louis
Glaucoma



Blair Germain, O.D., joined the well eye service as Senior Instructor of Clinical Ophthalmology. She provides primary eye care to a wide range of patients, from children of age three to seniors. As part of the Flaum Eye Institute optometry team, she is responsible for routine and medical eye screenings. She is also experienced in diagnosing and managing complex medical conditions related to eye care. Germain has specific interests in working

with patients who have keratoconus, severe dry eye, and corneal ectasia, as well as pediatric eye examinations.

Germain is native to the Finger Lakes Region, growing up in Walworth, NY. She attended the University of Rochester, where she graduated with honors in mathematics. She completed her optometry degree at the New England College of Optometry. She performed rotations at the Veterans Administration in Boston, regional health centers and private practices, and in Alaska, where she cared for the native population at the Yukon-Kuskokwim Health Corporation.

Vamsi Gullapalli, M.D., Ph.D., joined the faculty as part of the retina service. He sees patients at FEI's Strong Memorial Hospital and at satellite locations. Gullapalli is a skilled surgeon with research interests in stem cells related to retinal pigment epithelial transplantation to help restore vision in diseases like Age-related Macular Degeneration. He returns to FEI after five years in Minneapolis, where he was a vitreo-retinal associate at Central Retina Specialists of Minnesota.

Gullapalli received his medical training at Bangalore Medical College in Bangalore India. He then completed two post-doctoral fellowships in the United States: the first at the University of Rochester and the second at the University of Southern California. He traveled to Rutgers University where he earned his doctorate in neuroscience, followed by an ophthalmology residency at University of New Jersey School of Medicine. He returned to the University of Rochester where he did his vitreo-retinal fellowship. Upon completing his fellowship, he entered private practice. But the yearning for an academic life proved too much, hence his decision to return to the University of Rochester.

Despite a busy clinically-oriented career, Gullapalli has dozens of peer-reviewed publications, book chapters and presentations at national meetings. He is board certified and an active member of the American Society of Retina Specialists and the American Academy of Ophthalmology. He plans to partner with scientists in the Advance Retinal Imaging Alliance to continue his retinal transplantation research.



Recent events, including the turmoil caused by the COVID-19 crisis, saw many faculty and staff step into enhanced roles. These include:

Sarah, Klein, O.D., became Chief of Optometry. In this role she oversees a team of 14 optometrists. Together they provide well care and medical care to patients and co-manage patients with FEI's surgical and sub-specialty ophthalmologists. In addition, Klein also interfaces with FEI's optical dispensaries and contact lens service.

"Sarah's service to our Eye Institute and the University has been outstanding, and I look forward to working with her during the next phase of growth," **David DiLoreto** said.

Klein takes over the role from **Robert Ryan, O.D.**, who steered the optometric service through tremendous growth and will be focusing on co-managing patients with the retina service.

Mithra Gonzalez, M.D., takes over the role of Associate Chair of Clinical Affairs and Diversity. In addition to heading FEI's busy oculo-plastic and orbital reconstructive surgery service, the Associate Professor of Ophthalmology now provides important medical guidance to the entire clinical operation. Gonzalez played a vital role in helping the clinical faculty and staff navigate the COVID-19 crisis and served as the Eye Institute's chief liaison with the University of Rochester and public health officials. He will also help to increase diversity of faculty and staff.

Joseph Gabriel, M.S., has been appointed Department Administrator, overseeing the entire enterprise's daily operations. This includes staffing and training for the department, managing the finance and billing team, and providing project management oversight for FEI's seven clinical locations and research enterprise.

Rachel Wozniak, M.D., Ph.D., now heads up FEI's medical student education efforts. In addition to her busy clinical and research schedule, she will provide educational guidance and opportunities for University of Rochester School of Medicine students with clinical and scientific interests in ophthalmology.

Ronald Plotnik, M.D., M.B.A., has been named Director of Clinical Operations and assumed the role of FEI's e-record liaison to the University of Rochester Medical Center. He is responsible for increasing efficiency across the clinical service and integrating the ophthalmology department's electronic medical record, billing and scheduling functions with other University medical specialties and the information technology departments to optimize patient care. Plotnik is also FEI's quality assurance officer.

Grooming leaders in ophthalmology

The Association of University Professors in Ophthalmology (AUPO) selected **Rajeev Ramchandran, M.D., M.B.A.**, as one of 13 participants in its inaugural Academic Leadership Development Program (ALDP). Ramchandran was chosen from a competitive pool of candidates spanning academic ophthalmology. ALDP is a new initiative by AUPO to groom clinicians and clinician-scientists for leadership positions in academic ophthalmology. The seven-month program began in July 2020.



Wozniak Career Development Award

Rachel Wozniak, M.D., Ph.D., is the latest in a growing line of FEI scientists and clinician-scientists to be honored by *Research to Prevent Blindness (RPB)* with a Career Development Award. Wozniak will use the \$300,000 grant to support her work related to blinding corneal infections.



Staphylococcus aureus (S. aureus) is a bacteria that is one of the leading causes of infections. In the eye, *S. aureus* is many times responsible for infectious keratitis. This condition can result in intense pain, impaired vision, and is responsible for approximately 2 million cases of blindness annually worldwide. Unfortunately, *S. aureus* has become increasingly resistant to antibiotic treatment. Much of Wozniak's current work looks at how to improve the effectiveness of available



antibiotics used to battle these infections, thereby improving patient outcomes.

Using her Career Development Award, Wozniak will take a novel approach to *S. aureus* caused keratitis. Very little is known about the bacteria's ability to establish corneal infections. Using genome sequencing and a living model, Wozniak proposes to better understand how these infections become established and flourish despite treatment. This will include screening more than 200 different strains of ocular and non-ocular *S. aureus*, many of which can multiply rapidly and mutate into antibiotic-resistant strains.

Through this process, Wozniak believes that she can identify the genetic factors responsible for their virulence. Understanding this could prove essential to improving existing treatments and developing new drugs less susceptible to resistance.

Wozniak is a corneal specialist who holds a doctorate in molecular genetics. She completed her ophthalmology training and corneal fellowship at FEI.

FEI in the Community

FEI continues to provide important information about eye care and community services through live educational programs, support groups and screenings. Future events can be found on our Friends of The Eye Institute Web page at www.foei.urmc.edu or by visiting our Facebook page.

Fall and winter were busy for FEI's outreach team and doctors. This included the launch of our 2020 initiative to bring awareness about eye health during this signature year. Unfortunately the COVID pandemic brought many of these activities to a pause as we followed Federal, State and local guidelines regarding screenings and interaction. We hope to continue the celebration in some form as the year draws to a close:

Oct. 11: The outreach team was at the Family Health & Fitness Fair at the RIT Inn and Conference Center, fielding questions and dispensing information about eye health.

Oct. 22: **Brooke Donaher, O.D.**, gave a lecture about eye health with diabetes for members of Eastern Service Workers, an

organization that provides support to people facing economic challenges despite being employed in the community.

Nov. 2, Dec 7, Jan 11: The Glover-Crask sponsored **Eyeglasses for Kids** program continued to hold free Saturday screenings for children. The program's mission is to improve the confidence and academic performance of school-aged children who have routine vision problems, like nearsightedness or farsightedness, by providing them with free eyeglasses. If other vision problems are detected during the screenings, children are appropriately referred to FEI's pediatric ophthalmology team for care. Special thanks go to the faculty and residency program physicians, who conduct the screenings, and to the opticians and staff who make the glasses and welcome the families.

Jan. 25: Feb 13: FEI kicked off its 2020 celebration with a general health and vision screening at AME Zion Church. Led by **Rajeev Ramchandran, M.D.**, volunteers from FEI, UR medicine and UR medical students, more

than 30 people received screenings for diabetes, blood pressure and vision. In addition to the screenings, attendees received individualized counseling based on their results, questions and concerns.

Feb. 13: FEI's Graves' disease support group met to share more best practices about coping with thyroid eye disease. Licensed UR Medicine acupuncturist, **Jin Fang**, discussed the adjunctive role of eastern medicine in helping people manage chronic conditions.

Feb. 19: The 2020 team went to the Schottland Family YMCA to deliver a presentation about how healthy habits promote healthy vision and conducted a general vision screening.

IF YOU ARE INTERESTED IN . . .
*inviting one of our faculty members to speak about eye health topics, starting a support group related to eye disease or scheduling a screening, please contact **Meghan King** at 585-276-7311. We'll do our very best to accommodate your request.*

Flaum Eye Institute

210 Crittenden Blvd.
Box 659
Rochester, NY 14642

www.EyeInstitute.urmc.edu
585 273-EYES

Optical society recognizes FEI Scientists

FEI Associate Professor of Ophthalmology **Jennifer Hunter, Ph.D.**, was named a fellow by the Optical Society of America (OSA). Since 1959, over 2,500 members have joined the ranks of OSA Fellows. These members serve with distinction in the advancement of optics and photonics through distinguished contributions to education, research, engineering, business and society. Hunter was specifically singled out for her contributions in the development of ophthalmic imaging systems that provide unprecedented insight into the function and structure of the retina.

At the fall 2019 meeting of the OSA, FEI collaborator and University of Rochester Optics graduate student **Tyler Godat, M.S.**, won the Young Investigator Award. This award is presented each year at the Fall Vision Meeting to the student with the best poster or platform presentation. Godat's presentation was about *in vivo* classification of retinal ganglion cells using specialized optical recording techniques.

College Town Growth

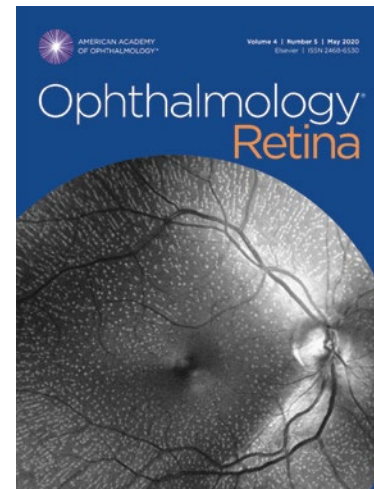
FEI's College Town satellite recently completed an expansion that more than doubled its size and increased the level of services available. Formerly, the location had two exam rooms and no diagnostic facilities with an optical shop. The new configuration has six exam rooms, expanded optical and contact lens services, and two new diagnostic lanes.

"The old space was immediately filled to capacity upon opening more than four years ago," administrator **Joseph Gabriel** said. "It lacked the diagnostic equipment found

at other satellite locations, so we couldn't see patients there who had conditions like diabetic retinopathy, glaucoma or macular degeneration. This new space provides much easier access to a wider range of patients from city neighborhoods and adjacent suburbs."

With the renovation, FEI optometrists **Anthony Dell'Anno, Sarah Klein, Jennifer Krech** and **Cathy Yuen** increased their availability there, providing both well eye exams and first-line medical care for referral patients. It also freed up space at FEI's Strong Memorial Hospital location for more specialty ophthalmology and allows for recruitment of additional faculty.

Imaging stars shine



FEI's ophthalmic imaging group were recognized for their outstanding work during the American Academy of Ophthalmology Meeting, which drew over 22,000 eye health professionals to San Francisco in October 2019. Photographs taken by **Katelyn Olney, Lilly Lautenschlager, Brittany Richardson** and **Brittany Bateman** all placed in the judging conducted by the Ophthalmic Photographers Society. In addition to taking top honors in the Slit Lamp Biomicroscopy category, Olney's Corneal Edema received the Best in Show award. Ophthalmic imaging professionals are an essential part of diagnosing and treating patients at FEI.

Announcing the **Mina Chung, M.D., Endowment Fund.** See inside to learn how you can celebrate the life of Mina Chung by helping us endow a professorship in her name.

